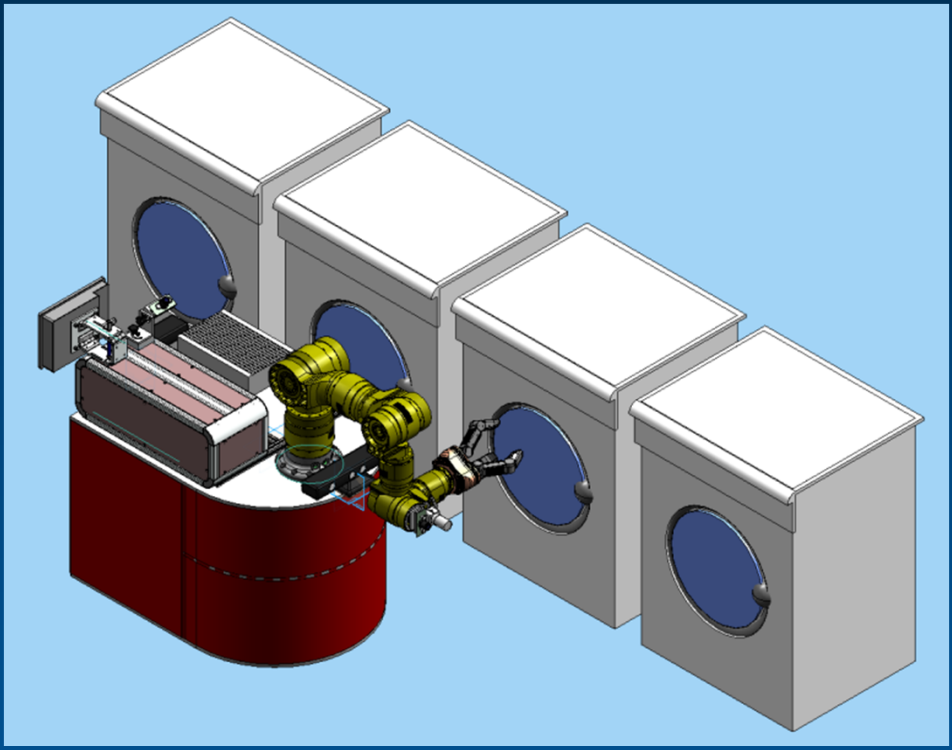
InterAID

Interactive Mobile Manipulators for Advanced Industrial Diagnostics



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European Clearing House
for Open Robotics Development
www.echord.info

Application case

Facts:

- Products for the consumer market need extensive testing
- 0,1% of the production is currently tested in the life cycle test laboratory
- Machines work for many cycles in order to simulate their working life (250-500 cycles)

Application case

Situation today:

- Operators are responsible to switch washing machines on and off and to load them with laundry
- Some quantities are measured for each machine automatically (energy absorption, water consumption, number of cycles)
- Additional parameters like machines vibration and noise are checked by the operators manually
- Installing additional measurement sensor on each machine to check these parameters automatically would be too expensive

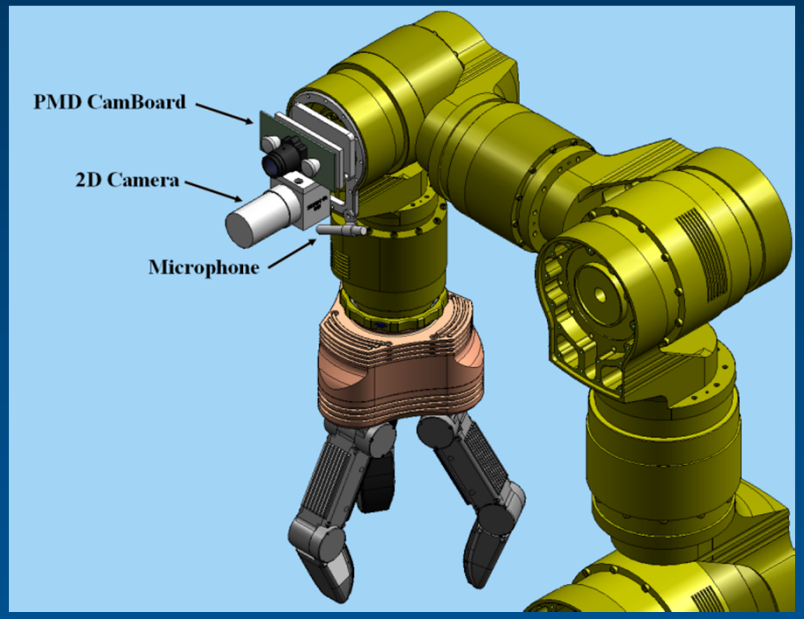
Experiment goals

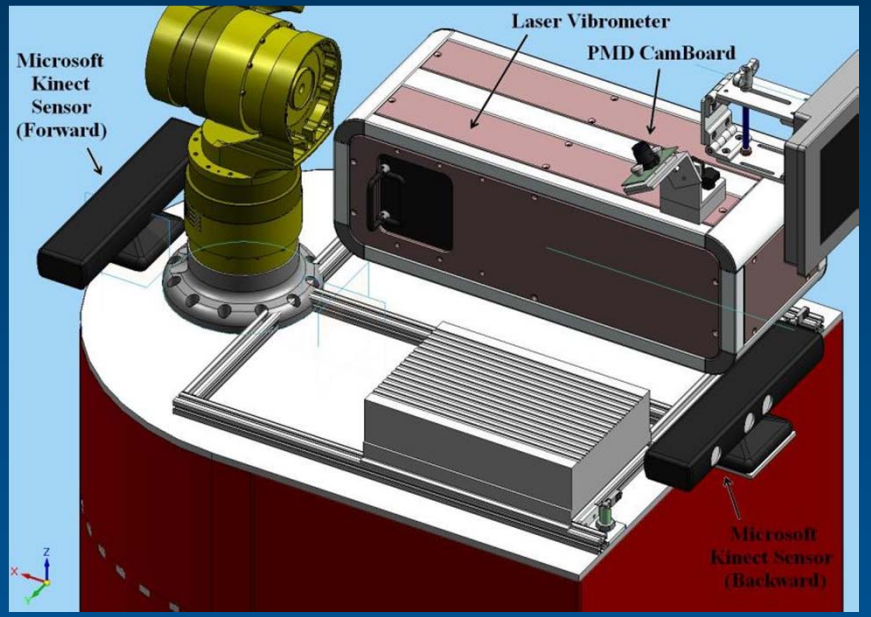
Automation using a Mobile Diagnostics Robot:

- automatically executes checks and operations on the washing machines
- this allows to relieve the operators from these repetitive tasks
- acquire additional quality data (e.g. noise, vibrations) with sensors on the robot

Advanced mobile manipulator

- Mobile base with manipulator
- 2D and 3D cameras, laser vibrometer, microphone





Advanced mobile manipulator

- Prototype integration

First results

- Successful tests in laboratory on a single washing machine

- To be continued with real world field test…

Technology Transfer: Hardware Integration

Fraunhofer robots

- Selecting and placing manipulator regarding workspace
- Integrating sensors regarding field of view and type

InterAID prototype

InterAID

Technology Transfer: Software

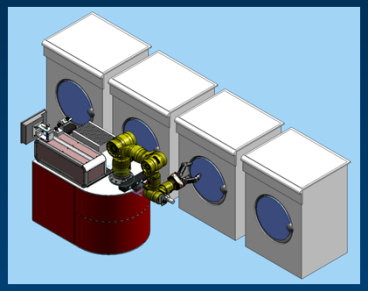
Open Source Software
(framework, libraries, technologies)

Fraunhofer Software
(libraries, technologies)

- Adapting
- Extending
- Optimizing
- Enhancing

Transfer of
- Hardware drivers
- Manipulation
- Navigation
- Environment perception

Thank you for your attention! Questions?



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